-Acceleration is the rate of change of velocity with the respect to time.

Just as the slope of x vs. t is the velocity,

The slope of v vs. t is the acceleration

a=∆v/∆t(vf-vi)/(tf-ti)

Variables to Know

f=always means final

i=always means initial

∆=change in

T=time of travel

A=rate of acceleration

Vi=your initial velocity

Vf=final velocity

*D=displacement*

*m/s=meters per sec*

*-Identify what your looking for*

*-Identify what you know and state your variables*

*-identify the equations you need from the variables you have(also the ones you don’t know)*

*-Rearrange equations to solve for the unknown*

*-Fix any unit mess ups*

*-Plug numbers in and out*

*-Check you units*

*TO find the equation for vf we use the variables we already know.*

*A=acceleration t=time vi=initial velocity*

*Vf=vi+at*

*To find the equation for d we use the same variables*

*Vi,vf,t*

*D=1/2(vi+vf)t*

*To find a it is very simple ∆v/∆t*

*Another equation that solves for d is:*

*D=vi(T)+1/2at2*

*There is also another way to solve for vf:*

*Vf2=vi2+2ad*

*1. A car is traveling 10m/s accelerating at 2.5 m/s* ***2***to its final velocity of 20m/s. How long does it take for this to occur?

We know: We don’t know:

Vf=20m/s t=?

A=2.5 m/s***2***

Vi=10 m/s

2. A plane reaches speed of 100m/s, it takes 10 seconds for it to get down the runway. How long must the runway be?

What we know: What we don’t know:

Vi=0 d=?

Vf=100

T=10